

# An assessment of the reliability of stated quantity in acute acetaminophen overdoses reported to a regional poison center

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## Background

- Acetaminophen (APAP) is a common overdose
- History is key for diagnosing poisoning
- History may be limited in self-harm

## Objective

- Determine proportion of patients who report accurate dose of APAP after acute overdose
- Proportion of patients with observed within +/-10% of predicted
- Reliability of "ingestion 40 g or more"

## Methods

- Retrospective case series from a single regional poison center
- Screened single-substance APAP containing overdoses seen in a healthcare facility (HCF)
- Inclusion required:
  - Time of ingestion
  - Weight
  - Dose of APAP
  - [APAP] between 4 and 24 hours

Predicted [APAP]  
 $(Dose * F * K_a) / (V_d * [K_a - K_e]) * (e^{-K_e(t)} - e^{-K_a(t)})$   
 F = 0.89,  $K_a = 1.4$ ,  $K_e = 0.17325$ , t = time after ingestion; charcoal reduced F to 0.78  
 APAP of "<" converted to "1" for stats

## Conclusion

**Stated dose** of acetaminophen in acute overdose accurately **predicted a concentration in 8%** of cases. Researchers should **explore alternatives** to stated history when approaching assessment of dose.

## Results

Screened 1,092 -> Excluded: chronic ingestion (252), no dose stated (125), no time of ingestion (109) -> No weight (214) -> Primary = 288

Demographics; n=288	
Age, median (IQR)	17 (14, 22)
Sex, female, (%)	228 (79.2%)
Weight, median	68 kg
Charcoal	126 (43.8%)

Outcomes	
Obs/predicted, median % (IQR; range)	19.4% (IQR: -35.6%, 76.1%; range: -100%, 6,018%)
Obs/predicted, median mcg/mL (IQR; range)	2.7 (IQR: -26.8, 35.2; range: -625.6, 210.0)
Obs/predicted +/-10%	8%
Obs > predicted	53.4%
Obs < predicted	38.5%

Twenty-six cases involved massive ingestions reported as 40 g of APAP or more. 0/26 had observed concentration within +/-10% of the predicted concentration. Observed concentrations were higher than predicted in 4/26; observed concentrations were lower than predicted in 22/26.

Figure 1. % observed versus predicted [APAP]

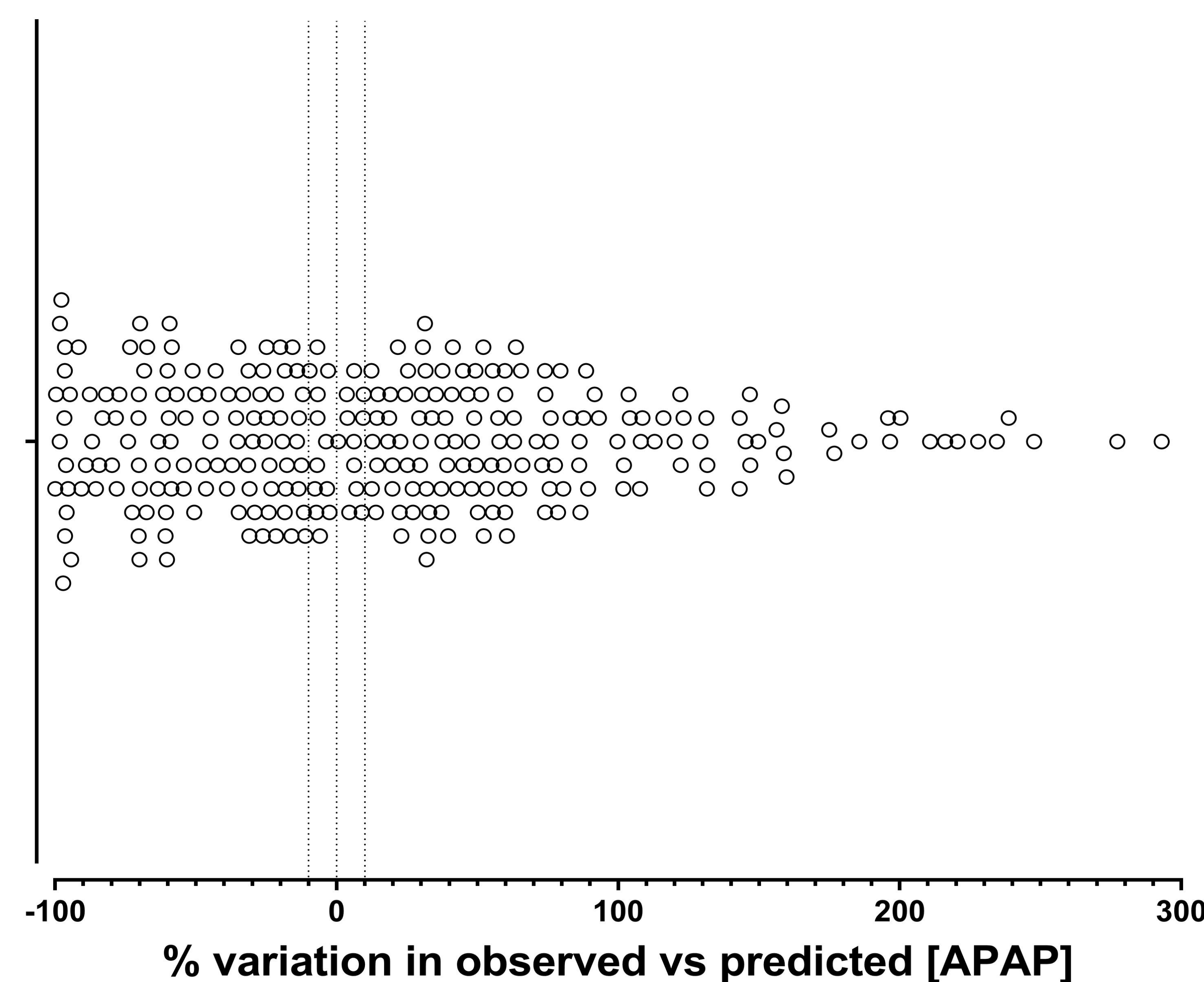


Figure 2. Observed versus predicted

